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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/648,626

08/25/2003

Steve B. Brown

IL-11024

4354

7590

05/23/2006

EXAMINER
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MENON, KRISHNAN S

Eddie E. Scott

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Lawrence Livermore National Laboratory

P.O. Box 808, L-703

Livermore, CA 94551

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 05/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/648,626

Applicant(s)

BROWN ET AL.

Examiner

Krishnan S. Menon

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13, 14 and 16-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14 and 16-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

Claims 1-11, 13,14 and 16-19 are pending as amended 2/24/06.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11, 13,14 and 16-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

1. The particle sequestering area (105) would not be visible through the window (104) for visual inspection because of the stainless steel flexure member (101).

2. In figure 1, the variable size passage between the piezo-electric stack (103) and the flexure member (101) is an annular opening surrounding the conical structure of the flexure, which seems to produce equal gaps between inlet (108) to area (105) and area (105) to outlet (109). If the gap were too narrow, the particles would not enter the sequestering area (105); if it were too wide, the particles entering the area (105) also would leave; thus area (105) would not function as a sequestering area as claimed. Also the picture is unclear as to how the fluid would be prevented from going around the piezo-electric stack (103) from inlet (108) to outlet (109).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 11, 16 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Kornelsen (US 6,629,820).

Claim 11: Kornelsen teaches a method of filtering with an apparatus having an inlet, an outlet, a variable flexure-based filter body with variable size passage in between, and piezo-electric stack (21: column 4 lines 53-65) connected to the passage for adjusting the passage opening as claimed. See figures 1-4 and 16-20, column 4 lines 3-15, and column 5 lines 45-57 teaches filter. See also column 2 lines 29-41. Regarding the sequestering area (area 54 or 52), see figures 16-20 and column 5 line 64 – column 6 line 37. Regarding the window, see column 6 lines 4-8, glass plate 62 would make the sequestering area 54 or 52 visible.

Claims 16 and 17: particles are beads, with diameter 30-50 microns – see figures and column 5 lines 51-53, and column 6 lines 8-10.

***Claim Rejections - 35 USC § 103***

Art Unit: 1723

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kornelsen as applied to claim 1 above, and further in view of Kyser et al (US 4,506,276).

Claims 3 and 13 differ from the teaching of Kornelsen in the recitation of a strain gauge operatively connected to the piezo-electric stack. Kyser teaches a piezo-electric stack with a strain gauge, wherein the strain gauge provides the electrical signal to operate the piezo-electric stack to open and close a valve depending on a sensed pressure condition. See abstract, figure 3, column 6 lines 30-38, and column 5 line 48 – column 6 line 18. With respect to claim 4 and 14, the claims differ from the teaching of Kornelsen in the recitation of the setscrew. See column 7 lines 2-7 of the Kyser reference, wherein a setscrew is used to adjust the position of the piezo-electric stack. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Kyser in the teaching of Kornelsen for automatic operation of the valve/filter on a sensed condition similar to what is taught by Kyser.

3. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kornelsen as applied to claim 11 above, and further in view of Gruber et al (US 2003/0066956).

Kornelsen teaches bead loading and unloading, with beads having chemically active surfaces in column 5 line 64 – column 6 line 27. Instant claims differ from the teaching of Kornelsen in the recitation of the beads having optical tags or antigen/antibody reactions. Gruber teaches beads or microspheres having optical tags or antigens loaded on the surface for manipulation by optical traps (see abstract, and paragraphs 14, 16-20 and 106). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Kornelsen in the teaching of Gruber as optical traps for such manipulations.

### ***Response to Arguments***

Applicant's arguments filed 5/15/06 have been fully considered but they are not persuasive.

The arguments do not overcome the rejections because the allegedly missing limitations in the arguments are clearly stated in the rejection. Motivation to combine the Kyser reference or the Gruber reference with Kornelsen is stated in the rejection.

The anticipation rejection under 35 USC 102 (e) of claims 1-10 over Kornelsen were dropped because the reference does not teach the variable passage as ***between the flexure unit and the expandable piezo-electric stack***. Kornelsen or any other reference, which teach a passage varied by a piezo-electric stack (such as a valve), teaches the passage as between a stationary member and a flexure unit; the flexure unit being flexed by the piezo-electric stack.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Krishnan S Menon  
Examiner  
Art Unit 1723